



Third West Weekly Report Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 05/31/2012 08:23 AM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@rockymountainpower.net>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)'" <cbamitz@utah.gov>

History: This message has been replied to.

### 7. Attachments









Weekly Report 05-21 to 05-25-12.pdf Third West Weekly Log 2012-21.pdf 236248-1.pdf 236331-1.pdf







236408-1.pdf 236518-1.pdf 236641-1.pdf

Joyce & Craig,

Attached are the reports for the week of May 21, 2012.

All air monitoring results came back negative.

Please let me know if you have any questions.

Thanks,

Mike Shepherd Project Manager Rocky Mountain Power - Major Projects 801.220.4584 Office 801.631.1310 Cell 801.220.2797 Fax michael.shepherd@pacificorp.com





# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

	DAILY CHECKLIST
DATE:	05/21/12
<b>a</b> 1	
<u>General</u>	
	area Health and Safety Inspection
NA .	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
· DIA	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues
	and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA ·	Record times and numbers of dump trucks and trailers as they leave the site with
	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
	manager.
NA Com	plete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
$\square$	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
•	☑ Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
<b>17</b> 1	Cat air samulas at sandinal samunas mainta amound avaluaism gama. Chaele
Ø	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.  Observe control measures for dust and fugitive materials i.e. watering excavation
	sites and track out prevention.
<b>V</b>	Review sign-in/sign-out log throughout and at the end of the workday.
<b>☑</b>	Secure the site at the end of the workday
	Secure the site at the old of the workday
<u>Sam<b>p</b>lin</u>	<u>g</u>
NA Soil	Confirmation sampling for any newly excavated areas
	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
147.7	removal
NA	Digitally photograph each sample location and at any place field sampling personnel
• ·• •	determined necessary





	Electronically file photo files into the on-site database
$\overline{\mathbf{A}}$	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
$\square$	Electronically file sample reports into on-site database



Project: 3rd West Sub Station		Date: 05/21/12	
Location: 3rd West, 1st South, SLC	*	Job Number:	
Survey Conducted By: <u>Justin Kargis</u>		Title:	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.		2	х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.		2	х	v
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.		Si.	х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х	el el		
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.	-		x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	X			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x	27		
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			,
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.		¥	х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone inactive today.

Newman backfilled and compacted around piers between switch gear and transformer in bay 2. They also wetted areas outside the exclusion zone.

CVE line crew dug for and set grounding grid.

Energizing of station was postponed.

Weather was hot, dry and breezy with no precipitation and temperatures in the low 90's.





## 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

# **HEALTH SAFETY MANAGER (HSM)**

### DAILY CHECKLIST

	DITTE I CHECKETO!
DATE:	05/22/12
General	
	k area Health and Safety Inspection
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IIA	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
NA	to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with
1 12 1	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
	manager.
NA Com	plete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
<b>7</b>	Exclusion zone operations are practiced as instructed.
	✓ Decontamination unit is working properly.
	✓ Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation
	sites and track out prevention.
☑	Review sign-in/sign-out log throughout and at the end of the workday.
Ø	Secure the site at the end of the workday
<u>Samplii</u>	าง
	<b>-2</b>
NA Soil	Confirmation sampling for any newly excavated areas
<b>☑</b> .	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





Ø	Electronically file photo files into the on-site database
<b>7</b>	Complete Field Documentation
$\overline{\mathbf{Z}}$	Field Sample Data Sheets (FSDS)
<b>7</b>	Logbook
	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
$\overline{\mathbf{A}}$	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
$\square$	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: <u>05/22/12</u>			
Location: 3rd West, 1st South, SLC	Job Number:			
Survey Conducted By: Justin Kargis	Title:	e T		

		] In Compliance	Out of Compliance	] N/A	Corrective Action Taken and
Standard	Hazard Communication Program, List of			x	Date
1926.59	Chemicals, Training, MSDSs.		¥	^	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	,
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.		· ·	x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.	3		х	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.	E		х	3
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х .	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x		180	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х		ž.	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.		*	х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	х			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

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Exclusion zone inactive today.

Newman backfilled and compacted around piers between switch gear and transformer in bay 2 and placed yard rock around the control building. R&R noted that they wetted most of the exposed native material in the EZ before going home. Employees from most contractors have been working in EZ without suiting up as long as native soil has remained wet and while no excavations are occurring. CVE line crews continued assembling and setting ground grid.

Sub Station energized between 12 noon and 13:00 but problems with phasing were noticed causing deenergizing for the night.

RMP relay technicians on site to work in switch gear.

Wilding tested areas where compaction took place.

Weather was hot, dry and sunny with moderate afternoon breezes and temperatures in the mid 80's.



NA

determined necessary



# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## **HEALTH SAFETY MANAGER (HSM)**

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NA		Document required Respirator Training completion with Form H
NA	•	Record times and numbers of dump trucks and trailers as they leave the site with
112		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA	Comple	ete all CSHASP Forms (for applicable activities planned for that day)
	NA .	Illness/Injury Report Form A
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		Exclusion zone operations are practiced as instructed.
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Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
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1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
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Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
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1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
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1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.		x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.		x	
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1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x		
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1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x		
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1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	3
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1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
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	In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Title				Date
Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	,
Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new			х	
	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.  Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.  Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new	Title  Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.  Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new	Title  Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.  Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new

Exclusion zone inactive today.

Newman moved some native material in the EZ to accommodate for CVE fabricators. They had wetted the stockpile before creating a gap for survey equipment. R&R discussed this with CVE while taking place in an effort to improve communications. Newman has watered most of the exposed native material in the EZ more regularly. R&R encouraged them to make sure all areas with the potential to create airborne dust are kept wet. They backfilled, compacted and added yard rock in area between switch gear and control building and the embankment on north side of switch gear. Exclusion zone has been suspended based on Newman's ability to control dust and track out. Continued monitoring of their diligence in keeping dust under control and wetting exposed native material will be noted.

CVE line crew set columns for buss work from transformer in bay 2 to switch gear.

CVE fabricators began set forms for getaway structures in EZ

South wire/Wasatch on site to finish splicing and testing Jordan transmission line in vaults and yard. Weather was warm, mostly sunny and dry with moderate breezes and temperatures in the low 70's.



NA

determined necessary



## 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DAT	`E:	05/24/12
	7 1	
	General	and Haddh and Cafety Ironastics
		area Health and Safety Inspection
Г	NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
ľ	NA ·	activities for the day Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
7	NA	Site hazard and safety instruction for all first time employees, contractors or visitors
	NA NA	Complete Employee Meeting Record Form B (where applicable)
	NA NA	Document required Respirator Training completion with Form H
	NA.	
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
TA.T.A		
NA		Confirm return of waste material manifest documents for each load with site
TAT A	C	manager.
NA	•	lete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	· NA	Combined Space Entry Pennit From F
	$\square$	Exclusion zone operations are practiced as instructed.
		☐ Decontamination unit is working properly.
•		✓ Workers are using decontamination unit as instructed.
		✓ Workers use personal protective equipment properly.
(	<u> </u>	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	<b>☑</b>	Review sign-in/sign-out log throughout and at the end of the workday.  Secure the site at the end of the workday
<u> </u>	Sampling	
TNT A	esil c	Confirmation compline for any negative everyoted access
NA ☑	Son C	Confirmation sampling for any newly excavated areas  Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
]	NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal

Digitally photograph each sample location and at any place field sampling personnel





	Electronically file photo files into the on-site database
$\square$	Complete Field Documentation
Ø	Field Sample Data Sheets (FSDS)
	Logbook
$\square$	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
<b>7</b>	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental
	Samples
$\square$	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
$\overline{\mathcal{A}}$	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: <u>05/24/12</u>
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	.  Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.		47	x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x	e e		
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	3		x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			· ·
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			,
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone inactive today.

Newman began to prepare and add yard rock to embankment along east fence south of the entrance.

They compacted along the fence line east of the control building. They said the did not water the stockpile due to CVE fabricators working with equipment to form and pour getaway structure footings in EZ. R&R encouraged them to wet exposed native material when they can.

CVE fabricators continued forming for getaway structure footings and poured them at around 5pm.

CVE line crew continued working on grounding and clean up.

South wire/Wasatch electric on site to work on transmission lines and connections.

Weather was cool, partly cloudy and dry with light breezes and afternoon temperatures in around 70.





## 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DAT	E:	05/25/12
G	eneral	
		area Health and Safety Inspection
	A	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
• '	- <b>-</b>	activities for the day
N	Α	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N	Α	Site hazard and safety instruction for all first time employees, contractors or visitors
N	Α	Complete Employee Meeting Record Form B (where applicable)
N	A	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		☑ Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		☑ Workers use personal protective equipment properly.
✓	1 .	Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
V	1	Review sign-in/sign-out log throughout and at the end of the workday.
<u> </u>		Secure the site at the end of the workday
<u>S</u>	am <b>p</b> ling	
NA	Soil C	onfirmation sampling for any newly excavated areas
$\square$		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
N	I <b>A</b>	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
N	I <b>A</b>	Digitally photograph each sample location and at any place field sampling personnel determined necessary





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Project: 3rd West Sub Station	Date: 05/25/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х	×		
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x	4		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.	1		x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	**
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х		,	

	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
Standard					
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.	R	-	x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

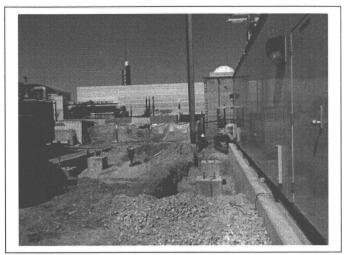
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

#### Comments:

Exclusion zone inactive today.

Newman compacted soil around getaway piers in EZ and other areas in the yard. They wetted some of the stockpile before leaving for the day around 3.

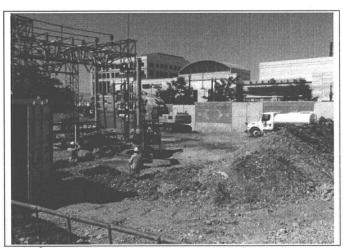
CVE fabricators removed forms from getaway structure piers. They helped line crew with clean up. Wilding engineering conducted compaction testing on areas worked on throughout the day. Weather was cool, and breezy with cloudy skies and temperatures in the mid 60's and minimal rain showers.



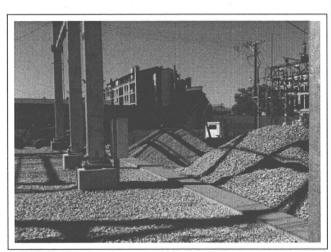
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

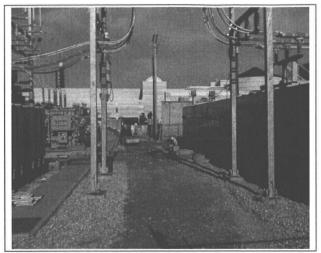
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 05/21/12	FILE:	

#### **SITE PHOTOGRAPHS**





РНОТО 1



РНОТО 2



РНОТО 3

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

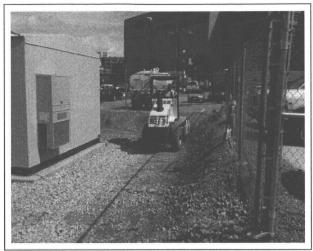
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 05/22/12	FILE:	

SITE PHOTOGRAPHS

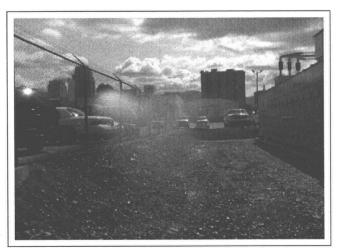




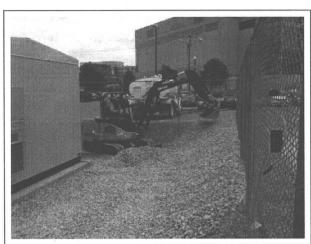
**PHOTO 1** 



РНОТО 2



РНОТО 3



РНОТО 4

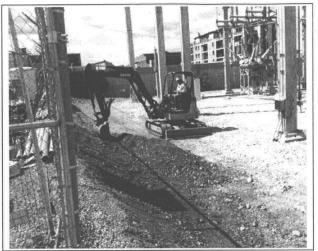
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

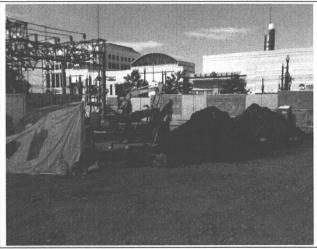
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 05/23/12	FILE:	

#### SITE PHOTOGRAPHS





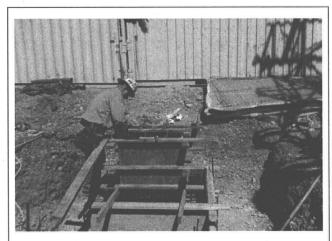
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

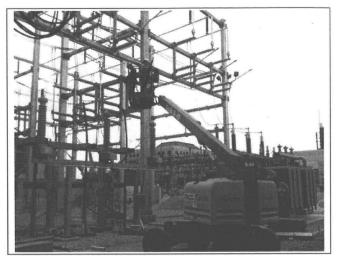
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

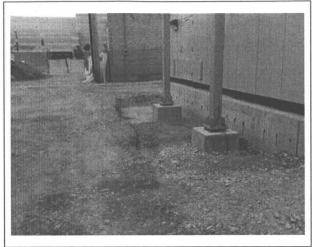
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 05/24/12	FILE:	

#### SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

DRAWN BY:
DATE
JMK

05/25/12

FILE:

SITE PHOTOGRAPHS



PROJECT NAME:	Third West Sub - Rebuild		DATE :	Monda	ay, May 21, 20	012
PO & Work Order NO. :	3000078050	0 / 10035803	MAIN CONTR	RACTOR:_	Cache Valley	Electric
Crew Start Time:	6:55	Crew Stop Time:	16:55		ot Hrs mns:	10:00
FCR Start Time: Use military time format 00:00	6:43	FCR Stop Time:	17:05		ot Hrs mns: _	10:22
WEATHER CONDITIONS:		Sunny - 55 degre	es in <b>AM</b> , 94 de	egrees in PM	1	
DESCRIPTION: (work perfo						-(1)-
cable trench. They were off-site for the switchgear to allow Newm and also backfilled in the N fdn e is working in the Jordan vault on anticipate getting one done each Crew = 4, CVE Fab Crew = 0,	or the aftemoon at Jo an to know where to lexcavations with still s 400 West, installing s day on Tuesday, We	ordan Sub. CVE Fab Crew for bring their subgrade to. New come additional work to do. splices and worked to the poi dnesday, and Thursday, the	oreman came by low rman backfilled in the Newman graded the not where the cable on starting on the te	ong enough to the cap bank he east roadv es were heate erminations or	o lay out the we excavations to way. Southwire of for splicing. In Friday. CVE	st porch subgrade /Wasatch They
	i					
IF WORKING IN ENERGIZED					<u> </u>	
Dispatcher login, name and time:  Dispatcher logout, name and time		<u> </u>		<u> </u>	,	
DISCREPANCIES:	Tuni Baa 1100		MMEDIATE CO	RRECTIVE	ACTION TAN	KEN:
			· · · · · · · · · · · · · · · · · · ·		,.	
				······································		
	<u> </u>					
		_ \				
DELAYS OR LOST TIME EN	COUNTERED:		- <del></del>			
			·			
EQUIPMENT (working, delivered, idle):						
CVE fab crew: Portable toilet (3), for JLG (2), tool trailer. Newman: trache	klift, 1 dumpster, office			r, crew truck. C	VE Line Crew:	Pickup (2),
OSHA Recordable Safety In	cidents:		F	Reported by	/: T	ime:
		· · · · · · · · · · · · · · · · · · ·			ŀ	

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

A division of PacifiCorp

PROJECT NAME:	Third West Sub -	DATE :	Tuesday, May 22	2, 2012		
PO & Work Order NO. :	3000078050 / 10	0035803	MAIN CONTRACT	OR: Cache Va	lley Electric	
Crew Start Time:	6:50	Crew Stop Time:	17:20	Tot Hrs mns	s: 10:30	
FCR Start Time:	6:36	FCR Stop Time:	17:30	Tot Hrs mns	: 10:54	
Use military time format 00:00	<del></del>	-				
			•			
WEATHER CONDITIONS:		Sunny - 62 degr	ees in AM, degrees	in PM		
DESCRIPTION: (work perform						
R&R set up four monitors. Substations side. Rooster is going to phase at the Line Crew is working at Jordan this mand getaway structure fdns and will be reconnected the ground to the grid at the Jordan vault on 400 West, install Thursday, then starting on the terminal Southwire/Wasatch = 6, R&R = 1, Very the R&R = 1,	e Conference Center, noming. CVE Fab Cre be working on completing on needs to install a 4/ing the bottom splice. nations on Friday. CVI	and then if necessary, row is not on site today. Nong the N fdns. Newman 0 to 2 HP and reconnections attacks.	oll phases A and C at T lewman has backfilled tore out a ground wire to the switchgear. So one done each day on	Third West, Circuit 1 to subgrade the cap running to the swit buthwire/Wasatch is Tuesday, Wednesd	507. CVE pacitor bank chgear. CVE working in lay, and	
			•			
·						
·				•		
		•				
IF WORKING IN ENERGIZED S	UBSTATION:		··			
Dispatcher login, name and time:	Kim Batt 0636					
Dispatcher logout, name and time:	Jim Bowman 1730					
DISCREPANCIES:			MMEDIATE CORRE	CTIVE ACTION	TAKEN:	
	<u> </u>					
·						
			<del></del>			
DELAYS OR LOST TIME ENCO	UNTERED:					
EQUIPMENT (working, delivered, idle):						
CVE fab crew: Portable toilet (3), forklift, JLG (2), tool trailer. Newman: trachoe (	•			rtruck. CVE Line Cre	w: Pickup (2),	
OSHA Recordable Safety Incid	ents:		Repo	rted by:	Time:	

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

PROJECT NAME:	Third West Sub - Rebuild		DATE :V	Vednesday, <b>Ma</b> y 23	3, 2012
PO & Work Order NO. :	300007805	0 / 10035803	MAIN CONTRACT	OR: Cache Valle	ey Electric
Crew Start Time:	6:50	Crew Stop Time:	17:10	Tot Hrs mns:	10:20
FCR Start Time:	6:34	FCR Stop Time:	17:30	Tot Hrs mns:	10:56
Use military time format 00:00	0.04	TOR Stop Time.	17.30		
Ose miniary time format 60.00			•		
WEATHER CONDITIONS:	<del> </del>	Sunny - 55 degre	es in <b>AM</b> , 61 degree	es in PM	
DESCRIPTION: (work perfor	med, gen <b>er</b> al cor	nments, ins <b>tr</b> uctions to	ontractor, # of crev	v members onsite	·.)
R&R set up four monitors. Energiz the phasing on the 12 kV circuits w Switchgear. CVE Fab Crew worke yard rock along the slopes on the Southwire/Wasatch is working in the afternoon. CVE Line Crew = 3, 0 = 1.	vere made last night ed part of the day on east and north sides he Jordan Vault on 4	CVE Line Crew stood the solution building forms for the capacis of the switchgear and is preploo West, installing the middle	tructural steel for the st tor banks and getaway oping the slope along the e splice and completed	tmcture between Xfm structures. Newma ne south fence line for the second splice in	or #2 and the n is placing or yard rock. early
IF WORKING IN ENERGIZED	SUBSTATION	<del></del>			_
Dispatcher login, name and time:	Paul Farr 0634			<del></del>	·
Dispatcher logout, name and time:					
DISCREPANCIES:	Ivianny canaan		MMEDIATE CORRE	CTIVE ACTION TO	AKEN:
	_ ··-	T			
<u> </u>				·-·	
			<del></del>		_
			<u></u>	····	
			·		
DELAYS OR LOST TIME ENC	OUNTERED:				
EQUIPMENT (working, delive					
CVE fab crew: Portable toilet (3), fork JLG (2), tool trailer. Newman: trachor				truck. CVE Line Crew	: Pickup (2),
OSHA Recordable Safety Inc	idents:		Repo	rted by:	Time:
		•			<u> </u>
					,

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

PROJECT NAME:	E: Third West Sub - Rebuild		DATE : Thur	rsday, May 24, 2012
PO & Work Order NO. :	3000078050	/ 10035803	MAIN CONTRACTOR	: Cache Valley Electric
Crew Start Time:	6:55	Crew Stop Time:	18:40	Tot Hrs mns: 11:45
FCR Start Time:	6:47	FCR Stop Time:	19:25	Tot Hrs mns: 12:38
Use mi/itary time format 00:00			10.20	12.00
ose minary line romat co.co			•	
WEATHER CONDITIONS:	<u>,</u>	Sunny - 48 degree	es in AM, 67 degrees in	PM
DESCRIPTION: (work perform R&R set up four monitors. Energizing general housekeeping and material getaway fdns at 5:00 PM Complete placing yard rock along the slope. Installing the top, and final, splice of completed around 2:30. CVE Line R&R = 1, Wilding = 1.	ing of Substation cor I consolidation. CVE ed pour and cleanup They also placed AE on the Jordan circuit	ntinued this morning and core. Fab Crew worked on the caround 7:30 PM. Newman BC in the NE N fdn. Southwand is installing the standoff	ncluded around 9:30. CVE ap bank and getaway found is grading the slope along the re/Wasatch is working in the brackets for the conductors	Line Crew perfonned ations and poured the two the east fence line and e Jordan vault on 400 West, Final splice was
IF MODKING IN ENERGIZED	OUDOTATION		<del></del>	
IF WORKING IN ENERGIZED	<del></del>	20.47		
Dispatcher login, name and time:	Gus Montanez 0			
Dispatcher logout, name and time:	Manny LuHuan		MMEDIATE CORRECTI	VE ACTION TAKEN
DISCREPANCIES:		[	MMEDIATE CORRECTIV	VE ACTION TAKEN:
·				· · · · · · · · · · · · · · · · · · ·
DELAYS OR LOST TIME ENC	OUNTERED:			
DELATO ON EOST TIME ENO	OONTENED.			
<b>EQUIPMENT</b> (working, deliver				
CVE Line Crew: Portable toilet (3), for Newman: trachoe (1), loader, bobcat, a			conex, (2), tool trailer, Pickup	(2), JLG (1), tool trailer.
OSHA Recordable Safety Inci-	dents:		Reported	by: Time:
CO.TA Recordable Galety Inch	donto.	,		<u> </u>
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L	<del>-, -,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>		1	<u> </u>

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

A division of PacifiCorp

#### Third West Sub - Rebuild DATE: Friday, May 25, 2011 PROJECT NAME: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO.: Crew Start Time: Crew Stop Time: 15:40 Tot Hrs mns: FCR Start Time: FCR Stop Time: 15:40 6:42 Tot Hrs mns: Use military time format 00:00 Sunny - 45 degrees in AM, 68 degrees in PM **WEATHER CONDITIONS:** DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE Line Crew foreman is on site as the qualified person. CVE Fab Crew stripped forms from the getaway fdns and sealed the concrete. Newman placed yard rock along he north wall, north of the control building and backfilled around the getaway fdns so CVE can start forming the cap banks on Tuesday. Southwire/Wasatch is working on the terminations in the substation and at the tenn pole on 100 South. They got to the point where they heated the cables in preparation for the work to be done on Tuesday. CVE Line Crew = 1, CVE Fab Crew = 2, CVE Electrical Crew = 0, Newman = 3, Southwire/Wasatch = 5, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Gus Montanez 0647 Dispatcher logout, name and time: Manny LuHaun 1540 **DISCREPANCIES:** IMMEDIATE CORRECTIVE ACTION TAKEN: **DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT** (working, delivered, idle): CVE Line Crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex. (2), tool trailer, Pickup (2), JLG (1), tool trailer. Newman: trachoe (1), bobcat, mini-ex, water truck, compactor, backhoe. OSHA Recordable Safety Incidents: Reported by:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

A division of PacifiCorp



May 23, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 236248-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 236248-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 236248-1

Client:

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

May 22, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 23, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
1D Number	ID No	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-052112 W	EM	882231	0.0900	920	ND	0.0046	BAS	BAS
3W-052112 N	EM	882232	0.0900	920	ND	0.0046	BAS	BAS
3W-052112 E	EM	882233	0.1000	801	ND	0.0048	BAS	BAS
3W-052112 S	EM	882234	0.0900	918	ND	0.0047	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity
Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm



	6	13	17
Due Date:_		6/	(
Due Time:	A	-17 X	



Job#			
Page	1	_of_	

	Pager : 303-5 INVOICE TO: (I			NT)									C	ONTA	CT	INF	ORM	ATION:				
company. KER Environmental	Company:			,		Conta	± Da	we.	۔ اگ	2 6	elle	_			<u></u>		ontact:					
Address: 47 W 9000 S #2	Address:					Phoo	:				بسير	_				P	hone:					
Sandy U1-84020						Fax:										F	x:					
						Cell/p					<u> </u>	<u>3S</u>				C	etVpage	r				
Project Number and/br P.O. #:							Data Oeli				-											
Project Description/Location: 3 12 West Sub - RMP						d	we 6	4	rex	W	س, ۵	m	<u> </u>									
ASBESTOS LABORATORY HOURS: Weekdays:: 7am - 7pm		14 17.	3.77	- ( Y	RE	JUE	STED	AN	ALY	SIS	dia y		78.73		v	ÄĻI	) MA	TRIX C	OOES	LA	B NOTE	ES:
PLM / PCM (TEM) RUSH (Same Day) pc PRIORITY (Next Day	)STANDARD		-	T		•		Т				T			Ai	r=A			Bulk = B		-	
(Rush PCM = 2hr, TEM = 6hr.)				1 1			11		11	Ì		1		<u> </u>	Du	si = (	<u> </u>	F	aint = P			
				1 1			- 1 1	ł	11		1			<u> </u>		il = 5			/ipe ≃ W	_		
Metal(s) / Oust	"Prior notification is		Quant,						5			i	ļ		_	b = S		-	= Food			
RCRA 8 / Matals & Welding RUSH 5 day 10 day	required for RUSH	E E	٥	1 1		Scan	11	1	19			휥	ø	Drin	king	vvate		Olher	Water = V	W.		
Organics24 hr3 day5 Day	turnarounds.**	달	++. Preps			S S			Quantification	1.		antification	8	**,	STM	E179			rttedia only			
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - epr	n koloka njihek Pajuah je.	report, Point Count	8 8			Metals	-	-1	ਰ	Ę Ę	퉏.	.   Ē	2						,			
E.coll O157:H7, Coliforms, S.auraus 24 hr. 2 Day	3-5 Day	- I &	8, 5	≰		CLP, Welding Fume,	11	١	5				똩	ì	- 1	-	1		1	<u> </u>		
Salmonella, Listeria, E.coli, APC, Y & M 48 Hr3-5 Day	,	S	5 8	OSHA	용	7			+		S S	딅	ığ									
Mold	48 Hr3 DayS Day	Long	Level II		Respirable tyte(s)	ള	_	7	틿	8 5	ō	損	183		- 1	ŀ	1			T		
"Turnaround times establish a laboratory priority, subject to laboratory volume and a	re not guarantaed. Additional fo	Short report	l . 5	7400B,	% E	<b>Š</b>	[[구]	Ë,	ျပ္ပု	8 ¦÷	4 6	₂  <del>₫</del>	Ę	<b>e</b>					1			
sppty for alternaurs, weeksntla and helidays.**			AHERA ant, Mik	7400A,	Total,	5	ું ફિંું	5 3	[윤	‡   <u>բ</u>	1 20 7	-	Z Ø	틯	1	g	20					
Special Instructions:	•	£	E E	15	1m '	_	GANICS - M Salmonella:	E.coli O157:H7:	g g	Cofforms	활호	ij	ř.	ě	5 5	800	ا يَّجَ	Date	Time		mber (L	
		- 3	Semi-	P.C.	DUST -	RCRA 8,	ORGANICS - METH Salmonella: +/-			_,_	علننا	.   ≥	N N	Sample Volume	(L) / Area	Matrix	Container	ollected	Collect	ed	Use Only)	) 
Client sample ID number (Sample ID's must be unique		15		18	<u>ā   Ē</u>	×.	<del>5</del>	M	ICRO	BIOL	DGY	-	8		_	≥	#	nnvidolyy	htvmm a	p Ala		-
1 3W-052112 W	i Maryusan wa wa waya sa a	٠,	×			$\perp$			+	<del>.</del> .	<del>                                      </del>	1 .	1	97		A	5	યા		188		31
2 3W-057112 N		93.			<u> 7:11:</u>		3/4		44	2 34				92				1				32
3 3W-05212 E				$\perp$							$\perp \perp$	L	<u> </u>	80	1	Ш					3	33_
43W-0921125														918	3	1		$\downarrow$		8	22 E	34
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9			L.,,				$\perp$	_	1.1	4.	11	1		1					ļ			
10				48											72. 72.	Ĭ			1.			
Number of samples received: (Additional Control Contro	onal samples shall be listed	on atta	ched I	ong fo	rm.)									•								
NOTE: REI will analyze incoming samples based upon information received and will not be analysis as indicated on this Chain of Custody shall constitute an analytical services agreen															tativa	agrae	s that s	ibmission	of the followin	g samples for r	equested	
01.57	710	,_,					7. 1					-			Γ.		-			<del>-</del>		
Relinquished By:	Fed Ex			Date	e/Time:	<u>&gt;</u>	1411	(2					· ·			•	onditi		On Ice	Sealed	Intac	
Laboratory Use Only Received By: Da	1e/Time: 5/22/17	٠	9:	50	Ca	rrier:	Fee	\	UK.	X a	14	5 z	30 l	ļ	Tem	p. (F	")	<del></del>	Yes / No	Yes / No	Yes /	No
Results: Contact Phone Email ax Date		nitials		ontact			Pho	one		Fa		_		Oate	•			TI	me	Initi	als	

#### **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Cr = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

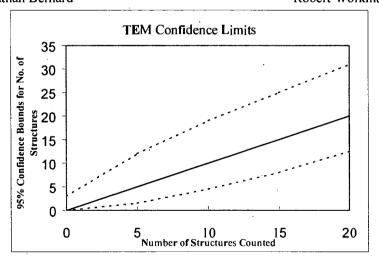
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.0 <b>8</b> 6 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	920
Date received by lab	5/22/12
Lab Job Number:	236248
Lab Sample Number:	882231

Lab Sample Number:	882231
F-Factor Calculation (Indirect Preps (	Only):
Fraction of primary fifter used	}
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (mi)	

Analyzed by	ゴB
Analysis date	5/23/2
Method (D=Oirect, I=Indirect, IA=Indirect, astied)	\\ \alpha'
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class	· · · · · · · · · · · · · · · · · · ·			1 = ye	es, blank	= no
Ond	Ond Opening	Туре	Primary	Total	Lengtft	Width	Identification	Amphibole	C NAM		Sketch/Comments	Sketch	Photo	EDS
A	F3-1	QV					·							
	E3-1	ND			Cup	A	80%	entur		20	ebris		·	
	C31	ND			Pus	B	60%	ou font	5	/	lebu's			
	E4-4	ND				' '			·					
	64-4	ND						$\mathcal{A}$	5/2	3/12				
B	F4-6	ND							,					
	E4-6	ND				٠.					·			
	C4-6	ND												
	C4-1	MD												
<u> </u>														

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	920
Date received by lab	5/22/12
Lab Job Number:	236248
Lab Sample Number:	882232

F-Factor Calculation (Indirect Preps Only):									
Fraction of primary litter used									
Total Resuspension Volume (ml)									
Volume Applied to secondary filler (ml)									

Analyzed by	JB
Analysis date	5/23/R
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Anatyzed
Scope Alignment	Data Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
Ond	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibote	С	NAM_	Sketch/Comments	Sketch	Photo	EDS
A	64-1	ND												
·.	F4-1	ND			Pur	A	70%	ntent	5%	delon	Ş			
	E4-1	ND			Pa	OB	80%	whent	50/	deb		-		
	H4-3	ND									·			
·	G4-3	MD						1B 51	23/12			· 		
B	G5-1	ND					ļ 	/1 /						
	F5-1	ND												
	E5-1	ND												
	C5-1	ND												
											·			

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mrrt2)	
QA Type	

Client :	R+R
Sampla Type (A≃Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	801
Date received by lab	5/22/12
Lab Job Number:	236248
Lab Sample Number:	882233

F-Factor Calculation (Indirect Preps On	y):
Fraction of primery filter used	
Total Resuspenalon Volume (ml)	· .
Volume Applied to secondary filter (ml)	

Analyzed by	ゴB
Analysis date	5/23/R
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	<u>,</u>
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage kycation	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
		Туре.	Primary	Totai	Length	Width		Amphibole	c_	NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-3	ND												
	F4-3	ND		,	Pu	s d	60%.	a hast	5%	e de	bn's			
	E4-3	NO		• • •	Pu	OB	60°6	intent	5	Lo de	bus			
	=4-1	ND				· 	·	ab 1						
	C4-1	ND						456/	3/12					
B	H2-3	ND												
	62-3	ND									·	,	·	
	F2-3	ND												
	E24	ND									·			
	C2-4	MD			·									

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Maanification	(ZokX) 10KX
Grid opening area (mnt2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filler Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	918
Date received by lab	5/22/12
Lab Job Number:	236248
Lab Sample Number:	882234

Analyzed by	ゴB
Arralysis date	5/23/R
Method (D=Dlrect, l=Indirect, IA=Indirect, ashed)	D'
Counting rules (ISO, AHERA, ASTM)	At
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Cild	J	Туре	Primary	Total	Length	Width	- Identification	Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
$\Box \theta$	154-6	NO												
	H4-6	MD		-	P.	A	70%	on funt	10	-152	debris	-		
	614-6	ND			Pur	B	-2		·			-		
	F4-6	2		·				B =/	23/12	•				
	E4-6	8							7					
B	844	ND												
	H4-4	ND												
	G144	ND												
	F4-4	ND												
								·						

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading,  $s/mm^2 = \frac{\# \ Asbestos \ structures}{Area \ Analyzed \ (mm^2)}$ 

GO = TEM grid opening



May 24, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 236331-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 236331-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE 1. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 236331-1

Client:

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

May 23, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 24, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Number Analyzed Volum		Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	<b>Loadin</b> g	
•			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-052212 W	EM	882390	0.0900	920	ND	0.0046	BAS	BAS
3W-052212 N	EM	882391	0.0900	922	ND	0.0046	BAS	BAS
3W-052212 E	EM	882392	0.0900	920	ND	0.0046	BAS	BAS
3W-052212 S	EM	882393	0.0900	918	ND	0.0047	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Due	Date:_	5.24.12
	Time:	Jan

## MOI Logan St. Osnver, CO 80216 - Ptr. 303 064-1986 - Fex 303-477-4275 - Tof Free :869 RESI-ENV

Page \_\_\_1\_\_ ot \_

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Company: QFR Euritonymental Company.											Co	Contact: Dave Roskelly Contact:																
Address: [	17 W 9000 S	#2		Add	Address:					Ptv											Phone.							
S	andy W. 840	10									Fa											Fax:						
			·									/pager	<u> </u>		541			<u>.                                    </u>				CelV	ager.					
	rr and/or P.O. 9;							Final Pata Dalivarable Email Address:																				
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PLM / PCN	M TEM RUS	SH (Same Day) _	KPRIORITY (	(Next Day) _	STANDA	RD	Т		T				T			П	T				Air =	Α		B	uík = B			
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	Metals & Welding	RU\$H	_ 5 day10		required fo		Ę	Quant			[ह				Quantificettor			§		Drinkin	g Wa				Water = W	<u>/</u>		
Fume Sca	n/ICD	turnarounds.**							Preps		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			$  \  $	ر پور	H		\$ E		****				ther				
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#### **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Cr = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

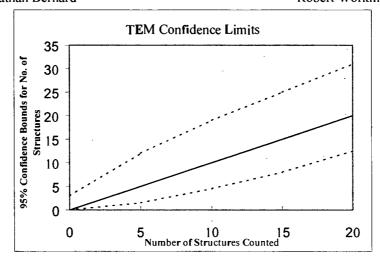
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Vollage (KV)	100 KV
Magnification	(20KX)10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+12
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	920
Date raceived by lab	5/23/12
Lab Job Number:	236331
Lab Sample Number:	882392

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary filter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Analyzed by	Au
Analysis date	5/24/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counlkig rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 ≃ y	es, blank	= no
Olid	Ond Opening	Туре	Primary	Total	Length	Width	identinoation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
·A	K53	MD						•						
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	65/3	2		G	e.A.	80%	intact	5-7%	del	و				
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	145-3	5						(						
	<b>65</b> 3	MD												
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Laboratory name:	REI
Instmment	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	20KX-10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary tilter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	<u>.</u>

Client :	R+12
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	918
Date received by lab	5/23/12
Lab Job Number:	236331
Lab Sample Number:	882393

Analyzed by	AH
Analysis date	5/24/2
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Anatyzed
Scope Alkinmeni	Date Anaiyzed

F-Factor Calculation (Indirect Preps Only):  Fraction of primary filter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Grid	Grid Opening	Structure	No. of Str	ructures	Dimensions		Identification	Mineral Class			1 = yes, blank = no		= no	
GING	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
P	65-4	ND												
	F54	MD												
	E54	MD		Pig	CA?	804	Mtact	5-7	9 d	e68		<u> </u>		
	(5.4	[M		Prec	B: 7		tact	5-72	det	25				
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B	15.3	3											,	
	K5-3	3												
	H5.3	M						1						
	653	MD						1						

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20KX)10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2) Secondary Filter Area (mm2)	385
QA Type	

Client :	R+12
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	920
Date received by lab	5/23/12
Lab Job Number:	236331
Lab Sample Number:	882390

Analyzed by	-1K
Analysis date	5/23/12
Melhod (D=Direct, !=Indirect, tA=Indirect, ashed)	Ð
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
Cind	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	94-6	M												
	FUL	M												
	84-6	M												
	C46	M			Pre	A	80%	v Laco	~52	deb.	Q,		·	
	B46	M			Pre	B	254	Macs	57.	116		-12	3/12	
	pur 6	100											7	
<u>B</u>	96-4	NO												
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Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX)10KX
Grid opening area (mm2)	0.01
Scale: 1L≈	0.28 um
Scale: 1D =	0.056 um
Primary lilter area (mm2) Secondaty Filter Area	385
(mm2)	
QA Type	

R+R
A.
922
5/23/12
236331
882391

Total Resuspension Volume (ml)	

Analyzed by	Act
Analysis date	5/24/12
Method (D=Dlrect, I=Indirect, IA=Indirect, ashed)	Ď
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = ye	s, blank	= no
- Cind	Chid Opering	Туре	Primary	Total	Length	Wkith	(deri(iiication	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
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	H3-6	M												
	G3-60	\\ \\[\]		Pier	A: 7	09/201	itact	5-7	de	505				
	F3-6	M		Pran	B~	Fig.	7							
	E3-6	ND					-							
B	H51	ND												
	65-1	DN				0		-						
	FS-1	4			·	0	·	-		·				
	E5-1	Q												
		·				·								

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of af least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm<sup>2</sup> = # GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm<sup>2</sup> = # Asbestos structures Area Analyzed (mm<sup>2</sup>)

GO = TEM grid opening



May 25, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 236408-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 236408-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 236408-1

Client:

Client Project Number / P.O.:

R & R Environmental

Client Project Description:

None Given 3rd West Sub - RMP

Date Samples Received:

May 24, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 25, 2012

Client ID Number	Lab ID N	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-052312 W	EM	882539	0.0900	903	ND	0.0047	BAS	BAS
3W-052312 N	EM	882540	0.0900	903	ND	0.0047	BAS	BAS
3W-052312 E	EM	882541	0.0900	903	ND	0.0047	BAS	BAS
3W-052312 S	EM	882542	0.0900	903	ND	0.0047	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Due Date: 5 25 12

Due Time: 910~

Contact

Rhøne Email Fax

Date

Time

## REILAE RESERVOITS ENVIRONMENTAL, INC... 8801 Logar St. Denver, CC e021e - Ph; 303 864-1986 - Fax 303-477-4275 - Toll Free :866 RESI-ENV

Page 1 of ]

Time

Initials

Date

Pager: 903-508-2098 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: RER Environmental Contact Dave Rockeller Company: Contact Addrssa Address: 47 W 91005 #2 Sandy Ul. 84070 Fac Celi/pager CeWpager: Project Number and/or P.O. #: Pinel Data Deliverable Email Address Project Doscription/Loretion: 3 West Sub - PMP ASBESTOS LABORATORY HOURS: Weekcjaya: 7am - 7pm REQUESTED ANALYSIS VALID MATRIX CODES LAB NOTES: RUSH (Same Day) X PRIORITY (Next Day) \_\_\_STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm Wipe = W Soil = S Metal(s) / Oust RUSH 24 hr. 3-5 Day F = Food Swab = SW Prior notification is Drinking Water = DW | Waste Water = WW RCRA 8 / Metals & Welding RUSH 5 day 10 day required for RUSH Fume Scan / TCLP Point Co. O = Other tumarounds.\*\* Organics 24 hr. 3 day 5 Day \*\*ASTM E1792 approved wipe media only\*\* SS MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm E.coli 0157:H7, Coliforms, S.aureus \_ 24 hr. 2 Day 48 Hr. \_\_\_3-5 Day Salmonella, Listeria, E.coli, APC, Y & M RUSH 24 Hr 48 Hr 3 Day 5 Day Mold \*\*Turnaround Ilmas establish a laboratory priority, subject to laberatory yolune and are net guaranteed. Additional fees apply for afterhours, weakands and hotidavs.\*\* Matrix Code Special Instructions: EM Number (Leborator) Date Time Use Only) Collected Collected Client sample ID number (Sample ID'a thirst be imique) MICROBIOLOGY hh/mm a/o 1 3W 052312 W 4 3W-052312 E 42 6 9 10 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze incoming samples based upon information is ceived and will not be responsible for errors or omissions in calculations resulting from this inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requasted analysis as indicated on this Chain of Custody-shall constitute agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge. Date/Time: S Sample Condition: Relinquished By: On Ice Sealed Intact Laboratory Use Onfy Yes / No Temp. (F°) Yes / No Yes / No جان در Carrier: Received By Date/Time: Results: Phone Emall Fax Phone Email Fax Date Time Initials Contact Date Time Initials Contact

> (1) Schools: 7994-1822 (775) 7-2011\_version 1

Contact

#### **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

## Asbestos Type A = Amosite An = Anthophyllite Structure Types F = Fiber B = Bundle

C = Chrysotile
Cr = Crocidolite

T = Tremolite

ND = no structures detected

M = other structure associated with a matrix

C = Cluster

M = Matrix

NAM = Non Asbestos Mineral

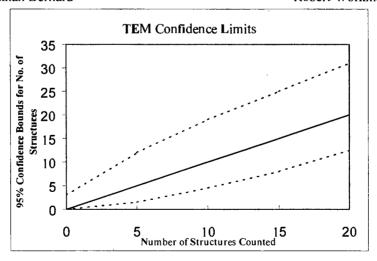
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX(N) S
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mnı2)	385
Secondary Filter Area (mm2)	
QA Type	

Clleni :	RAR
Sample Type (A=Air, D=Dus0:	A
Air volume (L) or dust area (cm2)	903
Date received by lab	5/24/12
Lab Job Number:	236408
Lab Sample Number:	882539

Analyzed by	JB
Analysis date	5/25/12
Method (D=Dlrect, I=Indirect, iA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

F-Factor Calculation (Indirect Preps Only):			
Frection of primary filter used			
Total Resuspension Volume (ml)			
Volume Applied to secondary filter (ml)			

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Gild	Grid Grid Opening	· Type	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	63-1	ND												
<u></u> .	F3-1	ND			Pm	o A	60%	le in how	4	5%	de bn's			
	E3-1	ND			Pa	OB	~A	B	5/25/	2				
	63-6	ND							/ /					
	F3-6	ND						/						
B	H5-4	ND								·				
	45-4	ND					-							
	F5-4	ND												
	E5-1	MD				,								

JB

Reservoirs	Environmentai, Inc.
TEM Asbest	tos Structure Count

I	
Laboratory name:	REL
Instrument	JEOL 100 CX(N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	RAR
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	903
Oate received by lab	5/24/12
Lab Job Number:	236408
Lab Sample Number:	882540

Analysis date	5/25/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Allanment	Date Analyzed

Analyzed by

F-Factor Calculation (Indirect Preps Fraction of primary filter used	
Trade of printing their cases	 
Total Resuspension Voluma (ml)	
Volume Appliad to secondary filter (ml)	 

Grid	Grid Opening	Stmcture	No. of Str	uctures	Dime	nskons	ldontification	Mineral Class				1 = 4	es, blank	= 00
**************************************		Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H5-3	MD									·			LDO
	65-3	M			15	o A	~50	The in Gu	+	50/	debus			
	F5-3	NP			74	R	70	% . 4	nt	50%	e debis			
	H2-3	ND		·				,						
	62-3	M				· · · · · · · · · · · · · · · · · · ·	·	18	5/2	5/12				
3	K3-3	NP						17	1	1				
	H3-3	ND						. /				-		
	613-3	MD												
	F3-3	20					<del></del>							

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Alr, D=Dust):	A
Air yolume (L) or dust area (cm2)	903
Date received by lab	5/24/12
Lab Job Number:	236408
Lab Sample Number	882541

F-Factor Calculation (Indirect Preps Only):

Analyzed by	<b>7</b> B
Analysis date	5/25/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

ea (mm2)	385	Fraction of primary filter used
er Area		Total Resuspension Voluma (ml)
,		Volume Applied to secondary filter (Inf)
	r <del></del>	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			-	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H3-3	ND											·	
	63-3	NO				Prop	1 70	Zinhul	5	Le de	bus			
	F3-3	ND				Pup	13 ~5	D'/ inta	f s	1	611	) 		
	E3-3	ND				•								
	F3-4	ND						13	51	25/2	2			
3	K3-6	NAD						//	/	/	`.			
	541	ND												
	K4-6	ND												
	194-3	ND												

#### Reservoirs Environmental, Inc. TEM Astrestos Structure Count

Laboratory name:	REI
insimment	JEOL 100 CX(N) S
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2) Secondary Filter Area (mm2)	385
QA Type	

Client :	RAR
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	903
Oate received by lab	5/24/12
Lab Job Number:	236408
Lab Sample Number	882542

Analyzed by	JB
Analysis date	5/25/12
Method (D=Dlrect, l=Indirect, IA=Indlrect, ashed)	, , ,
Counting mies (ISO, AHERA, ASTM)	Att
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirsct Preps Only):							
Fraction of primary filter usad							
Total Resuspension Volume (ml)							
Volume Applied to secondary filter (ml)							

Grid	Grid Opening	Stmcture	No. of St	mctures	Dimer	nsions	Identilication	Mineral Class				1 = ye	s, blank	= no
Ond	Ond Opening	Туро	Primary	Tofal	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-6	ND					<i> </i>							
	E4-6	MD			Ya	29 6	-4B	~60%	10.0	fur	5-10%	o de	bus	
	C4-6	ND						/	1		,			
	B4-6	ND				l <u>.</u>			B	5/2	5/12	· 		
	A4-6	ND							/	/	<u> </u>			
B	194-1	ND						1		·				
	14-1	ND												
	64-1	MD												
	F4-1	Np												

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

**B**undle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### Equations Used for Calculations

Area Analyzed, mm<sup>2</sup> = # GO counted x Average GO Area (mm)

Concentration, s/cc =  $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm<sup>2</sup> = # Asbestos structures Area Analyzed (mm<sup>2</sup>)

GO = TEM grid opening



May 29, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. # Project Description: RES 236518-1 None Given

3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2

Dear Customer,

**Sandy UT 84070** 

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 236518-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 236518-1

Client:

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

Analysis Type:

May 25, 2012

Turnaround:

TEM, AHERA

24 Hour

Date Samples Analyzed:

May 26, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID <b>N</b> umber		Analyzed Volume Sampled		Asbestos Structures Detected	Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-052412 W	EM	882791	0.0900	929	ND	0.0046	BAS	BAS	
3W-052412 N	EM	882792	0.0900	929	NO	0.0046	BAS	BAS	
3W-052412 E	EM	882793	0.0900	929	ND	0.0046	BAS	BAS	
3W-052412 S	EM	882794	0.0900	929	ND	0.0046	BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

# REILAB RESERVIITS ENVIRONMENTEN, INC. 5801 Logan St. Denvisr, CO 80216 • Ph. 303 984-1988 • Fax 303-477-4276 • Tot Free :586 RESI-ENV

Page

INVOICE TO: (IF DIFFERENT) **CONTACT INFORMATION:** Company Contact Dave (Los belles Contact: Environmental W 9000 5 \$2 Address: Phone: Sunda W. 84020 Cell/pager rolect Numbar and/or P.O. # deve @menviro.com Project Description/Location: 6 32 WEST Sub-RMP REQUESTED ANALYSIS ASBESTOS-LABORATORY HOURS: Weekdays: 7am - 7pm VALID MATRIX CODES LAB NOTES: PLM / PCM / TEM RUSH (Same Day) X PRIORITY (Next Day) STANDARD Bulk = B Air = A (Rush PCM = 2hr, TEM = 6hr.) Paint = P Dust = D CHEMISTRY LABORATORY HOURS: Weekdays: Sam - Spm Wip9 = W Soil = S Metal(s) / Dust RUSH 24 hr. 3-5 Day Swab = SW F = Food Quant, \*\*Priar notification is RCRA 8 / Metals & Welding Drinking Water = DW Wasia Water = WW required for RUSH RUSH \_\_\_ 5 day \_\_\_10 day Fume Scan / TCLP O = Other turnarounds.\*\* ÷ Organics 3 day 5 Day \*\*ASTM E1792 approved wipe media only\*\* Š. MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - epm E.coll 0157:H7, Collfbrms, S.aureus 2 Day Salmonsila, Listeria, E.coll, APC, Y & M 48 Hr. \_\_\_3-5 Day Mold RUSH 24 Нг 48 Hr 3 Day S Day "Turnaround times establish a laboratory priority, subject to laboratory volume end are not guaranteed. Additional fee: apply for aftorhours, weekends and twildays.49 Matrix Code Special Instructions: EM Number (Laboratory (L) / Area Date Time Use Only) ဦ Collected Collected Client sample ID number (Sample ID'a must be unique) MICROBIOLOGY mm/dd/yy hh/mun a/p Slzuliz 3W 7052412 W 6 8 9 10 (Additional aamples shall be listed on attached long form.) Number of samples received: NOTE: REI will analyze incoming samples based upon information received and will not be responsible fiv errors or craissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Cturn of Custody shall constitute apparatylical services agreement with payment terms of NET 30 days, failure to coorply with payment terms may result in e 1.51 monthly interest surcharge. FedEr Date/Time: 5/24 Relinguished By: Sample Condition: On Ice Sealed Intact Laboratory Use Ont Son See Temp, (F°) Yes /Ng Received By:

Date/Time: Results: Date 5/26 Time Z: 14. Colnitials // Contact Date 57 912 Contact Dave Phone Email Fax Phone Email Eax Time / as Initials Phone Email Fax Date Time Initials Contact Contact Phone Email Fax Date Initials Time

05G Ø

## **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

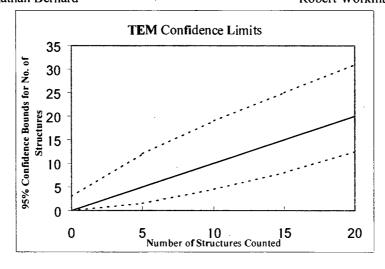
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N &
Voltage (KV)	100 KV
Maanification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um_
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	·
QA Tyoe	<u> </u>

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	929
Date received by lab	5/26/12
Lab Job Number:	236518
Lab Sample Number:	882791

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	W
Analysis date	5/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	nctures	Dimer	nsionsldentification		Identification Mineral Class				1 = yes, blank = no		
One	One Opening	Туре	Primary	Total	Length	Widlh	ideritation and i	Amphibole C NAM		Sketch/Comments	Sketch	Photo	EDS	
A	1443	M										·		
	G4-3	M						<u> </u>						L
	643	M												
L	643	M			Phen	# 2	to when	4 58 al	16 is					
	C43	M			Bes	B -	sic,	s Sold	les	-9				
B	14-4	M												
	34-4	w)							_					
	C4/6	$\mathcal{M}$												
	C5M	M										,		
				\ 										

# Reservoirs Environmental, Ine. TEM Aspestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20RX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	<u>.</u>

R+R
A
929
5/26/12
236518
882792

W.
5/24/12
D
AH
Month Analyzed
Date Analyzed

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary filter used					
Total Resuspension Volume (mi)					
Volume Applied to secondary filter (ml)					

Grid	Grid Opening	Structure	No. of Structures Dimensions		ructure No. of Structures		Dimensions		Identification	Mineral Class			1 = y	es, blank	= no
Ond	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	HU-1	M		· 											
	641	M													
	PUL	M													
·	EWI	M			Pne	A	8Uzins	nu 57d	Sori		·			L	
	C4-1	M		.	Pro	v Br	A	-1 Ar	m	/12				L	
3	63-6	M			. (										
	F3-6	M													
	936	M													
	C3-6	M													

#### Reservoire Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N &
Voltage (KV)	100 KV
Magnification	90KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	916
Date received by lab	5/26/12
Lab Job Number:	236518
Lab Sample Number:	882793

Analyzed by	W
Analysis date	5/24/12
Method (D=Direct, I=Indirect, tA=IndIrect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):				
Fraction of primary filter used				
Total Resuspension Volume (ml)				
Volume Applied to secondary filter (ml)				

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Jild	Ond Opening	Туре	Primary	Total	Length	Width	ideritinoation	Amphibole	С	· NAM	Sketch/Comments	Sketch	Photo	EDS
A	H4-6	M				 								
	1946	MO									:			
	pyc	M												
	EU-6	M			Pner	H-8	es no	w 82.	Uson.	<u></u>				
	016	(M)			Rose	.B~	A .	10/65	126	(2_				
B	94-3	M			, ,									
	FU-3	M									,			
	EU-3	M												
	(43	M												
							,	·						

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Laboratory Hame.	INEI
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	EORX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	227
Date received by lab	5/26/12
Lab Job Number:	236518
Lab Sample Number:	882794
Tana Carristo Latricon.	<u> </u>

Analyzed by	M
Analysis date	5/24/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary filler used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	s, blank	= no
	Crid Opening	Туре	Primary	Total	Length	Wkith	Identineation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	636	MD												
	F3-6	M												
	23%	W)												
	13-6	M			Pn	er A	ord out	us Be	leba	-				
	133%	M			B	ear B	NA	us Be	Ozi	1/12				
B	45-3	M			•					ι -				
	65-3	M		- -				·						
	F5.3	$\mathcal{M}$											_	
	(5.3	M												
							,							

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm<sup>2</sup> = # GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading,  $s/n_{Im}^2 = \frac{\# Asbestos structures}{Area Analyzed (mm^2)}$ 

GO = TEM grid opening



May 30, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 236641-1 None Given

Project Description:

None Given

David Roskelley R & R Environmental. 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 236641-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 236641-1

Client:

Client Project Number / P.O.:

R & R Environmental

Client Project Description:

None Given

Date Samples Received:

None Given May 29, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 30, 2012

Client ID Number	Lab ID Number		Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter - Loading	
	·		(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-052512 W	EM	883067	0.1000	813	ND	0.0047	BAS	BAS	
3W-052512 N	EM	883068	0.1000	813	ND	0.0047	BAS	BAS	
3W-052512 E	EM	883069	0.1000	778	ND	0.0049	BAS	BAS	
3W-052512 S	EM	883070	0.1000	813	ND	0.0047	BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm



DATA QA

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0016

#### TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 236641-1

Client:

R & R Environmental

Client Project Number / P.O.: Client Project Description:

None Given

None Given

Date Samples Received:

May 29, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 30, 2012

Client ID Number	Lab ID Number		Asbestos Mineral	Asbestos Structure Types*				Structures >S Microns in Length	**Excluded Structures	Asbestos Structures for	
			_	Fibers	Bundles	Clusters	Matrices			Concentration	
3W-052512 W	EM	883067	ND	0	0	0		. 0	0	0	
3W-0S2S12 N	EM	883068	ND	0	0	0	0	0	0	. 0	
3W-052512 E	EM	88 <b>3</b> 06 <b>9</b>	ND	0	0	0	0	0	0	. 0	
3W-052512 S	EM	883070	ND	0	. 0	٠	0	n	0	n	

<sup>\*</sup>See Analytical Procedure for definitions

<sup>\*\*</sup>C = Excluded from total due to lack of confinnation

<sup>\*\*</sup>L = Excluded from total for length less than 0.5 micron (AHERA only)

<sup>\*\*</sup>A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 5-38-12

Due Time: 9:38-

## Reservoirs Environmental, Inc.

880! Logan SL Denver, CO 80216 - Pti: 303 984-1986 - Fax 303-477-4275 - Toll Free :360 R631-ENV Page 1 0f

Pager: 303-809-2098 CONTACT INFORMATION: INVOICE TO: (IF DIFFERENT) Contact: Company: RER Environmental Dave Rosheller Addrsss: hone: 47 W 9000 S HZ Fax: 84070 Cell/cager: 80(541-1035 Cell/pagar Project Number and/or P.Q. #: deve & remire con Project Description/Location: REQUESTED ANALYSIS VALID MATRIX CODES LAB NOTES: ASBESTOS LABORATORY HOURS: Weekdays: Tam - Tpm RUSH (Same Day) X PRIORITY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr. TEN = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm Soil = 8 Wine = W \_\_\_\_ RUSH \_\_\_ 24 hr. \_\_\_ 3-5 Day Swab = SW F = Food Metal(s) / Oust \*\*Prior notification la Drinking Waler = DW | Waste Water = WW RCRA 8 / Metals & Walding Point Count RUSH 5 day 10 day required for RUSH Fume Scan / TCLP O = Other + Page tumerounds.\*\* \*\*A8TM £1792 approved wipe media only\*\* 24 hr. \_\_\_ 3 day \_\_\_ 5 Day Organics I, 7402, ISO, ISO-Indirect F MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm E.coll O157:H7, Coliforms, S.aureus 24 hr. 2 Day OSHA 3-5 Day 48 Hr. Salmonsila, Listeria, E.coll, APC, Y & M Mold RUSH 24 Hr 46 Hr 3 Dav S Day Short report, "Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional feea apply for afterhours, weekends and holidays.\*\* (L) / Area Special Instructions: EM Number (Laborator) Date Time Use Only) Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY hh/mm a/p 3W-052517 W 3W-052512 N 778 3W 052512 E 813 8 9 10 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE; REI will analyze incoming samples based upon information received end will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing dier l/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody street consultute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge. Dale/Time: 5/25/12 On Ice Relinquished By: Sample Condition: Sealed Intact Laboratory Use Only Temp. (F°) Yes / No Yes / No Yes / No Date/nme: Received By: Results: Dale Rhoge Email Fax Time Initials Conlact Phone Email)Fax Date Time initials Contact Phone Email Fax Initials Phone Email Fax Date Time Contact Date Time Contact 20e-F

7-2011 yersion 1

## Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

## Asbestos Type

### Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	$C_{-} = Cluster$
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

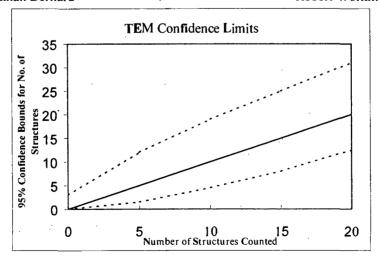
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	. 0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filler Area (mm2)	
OA Type	

LEIN Vancatos Otto	01010 000111
Client :	Rock
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	813
Date received by lab	5/29/12
Lab Job Number:	236641
Lab Sample Number:	883067

cab cample (valuee).	58.06.7
F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	1
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	5/30/12
Method (D=Direct, I=Indirect, IA=Indirect ashed)	7
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	nctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
0,10	One opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С_	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-3	ND												
	H4-3	W												
	64-3	QN		(	کمی	Aq	B ~60	5/2 14 h	nf	5	& delous	·		
	65-4	ND			• [					6				
	F5-4	M							4	5	30/12			
B	K4-1	ND												
	H4-1	ND				·		/						
	64-1	ND			_				,					
	F-4-1	ND					,							
	E4-1	MP												

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX(N) S
Voltage (KV)	100 KV
Maanification	20KX IOKX
Grid opening area (mm2)	0.01
Scale: 1L=	. 0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	813
Date received by lab	5/29/12
Lab Job Number:	236641
Lab Sample Number:	883068
Date received by lab  Lab Job Number:	5/29/12 236641

Analyzed by	JB
Analysis dale	5/30/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	7
Counting mies (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculatkin (Indirect Preps	Only):
Fraction of primary filter used	·
Total Resuspension Volume (ml)	
Volume Applied to secondary fliter (mt)	

Grid	Grid Opening	Stmcture	No. of Str	nctures	Dime	nsions	Identification	Mineral Class		•		1 = y	es, blank	= no
One	Ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-6	ND				Pa		60% in F	n f	5-	10% delar	S		
	H4-6	M		·		Pan	B	70 % in h	ut	5-1	O bodelow.	<u> </u>		
	64-6	M		-		•	, "	6			,			
	K5-3	ND					4	B 5/30/	2	·				
	H5-3	M												
B	H4.3	ND				,	/					. •		
	443	ND												
	F4-3	MD			:									
	E4-3	AN						t.						
	34-4	M									·	,		

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REÍ
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 10 =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	• •
QA Type	

Client :	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	778
Date received by lab	5/29/12
Lab Job Number;	236641
Lab Sample Number:	883069
,	

Lab Sample Number:	883069				
F-Factor Calculation (Indirect Preps	Only):				
Fraction of primary fister used					
Total Resuspension Volumo (ml)	·				
Volume Applied to secondary filter (ml)					

Analyzed by	JB
Analysis dale	5/30/12
Method (D=Direct, I=Indirect, IA=IndIrect, ashed)	
Counting rutes (ISO, AHERA, ASTM)	AH
Grid slorage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimensions Identification		Mineral Class			1 = y	es, blank	= no		
		Туре	Primary	Total	Length	Width		Amphibole		NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-1	ND			Pus	1	~50%.	n bent	5-10	2 del	N S			
	K4-1	MO		·	Pur	B	80%	aturt	5-10	6 de	<b>r</b>			
	H4-1	NO			• •			, h		,	·		·	
	64-1	MD						45	5/30	12				
	E3-6	ND						- / T	1 .					
B	H4-4	NO												
	444	ND												
	F4-4	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			:									
	E4-4	NO												,
	64-4	70												

#### Reservoirs Environmental, Inc. TEM Asbestos Strueture Count

Laboratory name:	REI
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Rock
A
813
5/21/12
236641
8830 70

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary fitter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filtsr (ml)					

Analyzed by	JB
Analysis date	5/30/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	<b>'</b> D'
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Oimensions		Identification	Mineral Class	Class			1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	44-4	M			Pu	a A	80%	a fint	5%	deba	45			
	64-4	NP			R	B	90%	in but	5 %	Jelon	us	:		
	F4-4	NO						d						
	E4-4	ND			i			15	5.30	12				
	64-4	MD						//	/ /					
B	53-3	NO				,		, . 						
	H3-3	M											·	
	513-3	M												
	F3-3	MD			:		• .							
	633	NO				<u> </u>					,			

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm<sup>2</sup> = # GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (nm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading,  $s/mn_1^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2)}$ 

GO = TEM grid opening